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A winning wavelength

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A ground-breaking Motion Forecasting and Monitoring System has been awarded the prestigious 2007 RINA (Royal Institution of Naval Architects) and LRET (Lloyd's Register Educational Trust) Ship Safety Award.

This successful system from oil and gas construction company Saipem uses Met Office wave energy forecasts to give predictions of how vessels will react to sea conditions. These predictions allow Saipem to enhance the safety of weather-sensitive operations around the globe.

The Met Office provides Saipem with highly detailed wave energy forecasts that are the foundation of the new system. These wave energy forecasts are combined with the motion characteristics of the Saipem semi-submersible crane vessel to give predictions of how it will react to the sea conditions.

Andy Saulter, Met Office wave scientist says: "Tremendous forces are involved in these crane operations and, in certain sea states, conditions can become too dangerous to proceed. The Saipem system was built to both monitor in real time the vessel motions, but also to predict in the short term when conditions might become too critical to operate. In order to do this, the system draws on highly detailed wave energy forecast output from the Met Office wave model to provide vessel motion predictions."

The system provides Saipem vessels the facility to increase working operability without compromise to personnel or equipment safety. Realistic motion predictions enable their offshore vessel management to significantly reduce the guesswork involved in realising weather window opportunities.

Notes:

- The Met Office wave forecast model produces highly detailed information describing wave field energy distribution (commonly termed the wave spectrum). The spectrum can also be used to split the overall wave field into separate wind-sea and swell elements. Detailed information of this nature is essential in precisely calculating the effect of wave motions on vessels.
- Met Office Aberdeen provides forecast services that are designed to support industries upon which the marine environment has an impact, including oil and gas, shipping, coastal construction, and marine law and insurance.

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